ABSTRACT OF THE DISCLOSURE

A novel combined engine for a single-stage spacecraft is provided that combines a air-breathing engine utilizing oxygen in the atmosphere as oxidizer and rocket engines for obtaining thrust outside the atmosphere and that does not require a portion whose shape is variable in accordance with the flight speed. Rocket engines 15 are provided on struts 12 that form air introduction channels 10 in the air intake section 4. The rocket jets 18 from the rocket engines 15 control the flow of the airflows 16 introduced into the combustion chamber 20 in accordance with the flight speed. When the spacecraft 1 is stationary or in subsonic flight, the rocket jets 18 promote air intake into the combustion chamber 20 by lowering of static pressure due to expansion (ejector effect). In the subsonic flight condition, it performs the role of air compression, mixing with incoming air, fuel injection and ignition and during supersonic/ultra-supersonic flight it performs the role of a variable diffuser.